

FOUR NEW SPECIES OF BATS (VESPERTILIONIDÆ) FROM KOREA

TAMEZO MORI (森 爲三)

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*Myotis chofukusei* sp. nov.

Type. Adult male. Collected by Fukusei Cho, at Kaishu, Kōkaidō, Korea, July 9, 1924.

Diagnosis. In general like *M. rufo-niger* Tomes of Central China, but size smaller, forearm and fingers shorter. Ears scarcely extending to nostrils when laid forwards. Wing membranes extending to base of outer toe. Interfemoral membrane forming obtuse angle in the middle of its free margin. Skull narrow, width of brain case less than half of greater length. Upper molar without protoconule.

External characters. Crown of head slightly elevated. Muzzle subconical with glandular prominences between eyes and nostrils; end of nose projecting slightly beyond upper lip, with a shallow concavity, not hollow, between nostrils which opens sublaterally. Ears rather thick and leathery, its general form ovate with rounded tip; inner margin slightly convex; outer margin concave, with a wavy outline in the upper half, then convex, and terminating opposite the base of tragus; inner surface of conch without well defined transverse striations. Tragus long, narrow, and subacutely pointed, its length more than half as high as conch, inner margin slightly convex, outer convex at base with two small lobules, then ascending straight. Wing rather narrow, with no peculiarity of form, the third, fourth, and fifth metacarpals subequal, their distal extremities falling short of elbow by about 5 mm.; calcaneum about half way between ankles and tail. Foot more than half as long as

tibia. Tail longer than head and body, its terminal vertebra free from membrane.

Fur and color. Fur of head and body dense and long, the hairs at middle of back about 9mm. in length; it is closely confined to head and body, with a narrow furred space along sides of body. Upper and lower surfaces of side membranes and upper surface of interfemoral membrane very small, thinly covered with short fine orange colored hairs. Lower surface of interfemoral membrane thinly clothed with short orange hairs; with haired fringe along the posterior margin of calcanea and interfemoral membrane. Back of toes scattered with long black-brown hairs. Color of upper parts of body capucine orange of Ridgeway; under parts more yellowish. Muzzle and cheeks lightly yellowish orange. Ears also yellowish orange, with dark margin. Membranes are orange with exception of black triangular areas between the third and fourth fingers, and the fourth and fifth fingers, and inside the fifth finger, and on the antebrachial membranes. Fingers and membranes close to them pinkish orange with exceptions of dark brown of outer margin of second finger. Legs pinkish orange and feet dark brown.

Skull. Resembles *M. bechsteinii* Kuhl of Europe, but lacrymal breadth broader and brain case smaller.

Teeth. Incisors essentially as in *M. bechsteinii*. Upper and lower canines relatively long; upper canines higher than main cusp of large premolar, cingulum complete but not forming distinct secondary cusp; lower canines less acutely pointed than uppers, their tip higher than highest cusps of molar, cingulum not forming anteriorly a slight secondary cusp. Small upper premolars in tooth row, not crowded, the height of firsts much less than half that of canine, that of seconds about half that of firsts, cingulum complete. Large upper premolars with crown area nearly three quarters that of first molar.

Measurements in mm. Head and body 47.5; tail 49; tibia 22.5, foot 11.5; forearm 45; thumb 9; third finger 68.5; fourth finger 58.5; fifth finger 56; ear from meatus 17; width of ear 11; tragus 9.

Skull. Condylobasal length 16.2; zygomatic breadth 10.5; interorbital constriction 4; lacrymal breadth 6; breadth of brain case 7.5; depth of brain case 6.5; mandible 13; maxillary tooth row 7.5; mandibular tooth row 8.

*Eptesicus brachydigitus* sp. nov.

Type. Adult male. Collected by Ikutaro Kobayashi, at Heijo, Heian'nando, August 15, 1922.

Diagnosis. This species is allied to *E. serotinus* Schreber, but its size much smaller, fingers shorter, the third finger 68 mm. instead of 80 to 92 mm; ear narrower, width of ear 12 mm. instead of 15 to 16 mm; skull narrower, zygomatic breadth 12.5 mm. instead of 14 to 15.5 mm.

External characters. Head slightly elevated; muzzle very broad and glandular prominence much developed; nostrils projecting, concavity between them not conspicuous, orifice crescentic. Ear thin, rather short, extending about halfway from eyes to nostrils when laid forewards, anterior border convex, posterior border slightly concave from just below the tip to level anterior base, then convex to abrupt angle under meatus marking posterior limit of small but well defined antitragus; inner surface of conch without papillae and cross ridges; tragus short, its height less than half that of ear conch, its anterior margin straight, posterior border convex from rounded tip to upper edge of small but distinct basal lobe, greatest width, at the level of middle of anterior margin, less than half length of anterior margin. Wing short especially on finger, the third, fourth, and fifth metacarpals subequal, 8 mm. shorter than forearm.

Legs slender, the foot more than half as long as tibia. Last two vertebrae of tail free from membrane.

Fur and color. Fur soft and dense, the longest hairs on back about 6 mm. in length. Fur is confined to body, only extending under surface of brachium; free edge of uropatagium completely naked. Ground color of upper parts buffy brown and underparts

lightly wood-brown. Membranes blackish. Muzzle, cheeks, and ears reddish brown.

Skull. Differs from that of *E. serotinus* Schreber, apart from its small size, narrower zygomatic breadth, and more than evenly rounded surfaces. Lambda not overhanging; ill-defined lamboid crests slightly curving towards contact point at the middle.

Measurements in mm. Head and body 57.5; tail 43; tibia 20; foot 10.5; forearm 47.5; thumb 9; third finger 68; fourth finger 58; fifth finger 51.5; ear from meatus 16.5; width of ear 9; tragus 7.

Skull. Condylbasal length 18; zygomatic breadth about 12.5; interorbital constriction 4.5; lacrymal breadth 7.5; breadth of brain case 9.5; mandible 14; maxillary tooth row 7.3; mandibular tooth row 8.

*Eptesicus kobayashii* sp. nov.

Type. Adult male. Collected by Ikutaro Kobayashi, at Heijo, Heian'nando, June 28, 1922.

Diagnosis. This species is very near *E. serotinus* Schreber, but size smaller; forearm shorter, its length 45.5 to 47 mm. instead of 50 to 53 mm.; ear rather smaller. It differs from *E. brachydigitus* Mori, in the longer finger (its length 79 to 85.5 mm. instead of 67 to 68 mm.,) and broader skull (its breadth 14 to 14.5 mm. instead of 12.5 mm.)

External characters. General form rather robust. Head broad and slightly elevated above the face; muzzle obtuse; glandular prominence largely developed; nostrils projecting, the concavity between them not conspicuous, the orifice crescentic. Ear rather thick, slightly shorter than head, extending more than halfway from eyes to nostrils when laid forwards, inner basal lobe rounded, lower third of inner margin very convex forwards, the upper two thirds faintly convex, posterior border strongly undulate from below the tip to the level of anterior base, inner surface of conch not papillose, but the region behind tragus marked by six faint cross ridges, the form of tragus as in *E. brachydigitus*. Wing rather long, as in *E. serotinus*, the third, fourth, and fifth metacarpals and

forearm subequal. Legs slender, the foot more than half as long as tibia. Two distal vertebrae of tail free from membrane.

Fur and color. Fur soft and dense, the longest hairs on back about 7 mm. in length. Fur is confined to body, only extending under surface of brachium, free edge of uropatagium naked. Ground colour of upper parts dark brown and underparts a little paler. Membranes blackish. Muzzle, cheeks, and ears reddish brown.

Skull. Similar to *E. serotinus*, but its size smaller.

Mesurements in mm. Head and body 61; tail 46; tibia 19; foot 10; forearm 45.5; thumb 8; third finger 79; fifth finger 58; ear 18; width of ear 10; tragus 7.

Skull. Condylbasal length 18.8; zygomatic breadth 14; interorbital constriction 4.9; lacrymal breadth 8; breadth of brain case 9.8; mandible 15; maxillary tooth row 7.8; mandibular tooth row 8.8.

*Vespertilio aurijunctus* sp. nov.

Type. Adult female. Collected by Seiichi Shimokoriyama, at Keijo, June 30, 1914.

Diagnosis. Skull and dentition as in *Vespertilio murinus* Linnaeus from Asia and Europe, but rostrum and deep concavity on each side between nares and lacrymal region rhomboidal, and zygomatic breadth broader. Externally differing from all known bats, having ears firmly joined by a dermal ridges placed between their inner margins on the forehead. The shape of ear and tragus as in *Nyctalus aviator* Thomas from Japan and China, but the ear much broader.

External characters. Body robust and heavy. Muzzle rather broad, its breadth greater than distance from the tip of snout to joining ridge of ears, each side with a very large glandular masses separated by some grooves from somewhat median flat dorsal surface; glandular masses densely hairy; nostrils projecting forwards and outwards with median concavity between them, the orifice crescentic. Ear thick and short, extending when laid for-

wards about halfway from eyes to nostrils, its breadth greater than height; anterior border of conch abruptly convex below, then nearly straight to broadly rounded towards extremity; posterior border about convex but slightly concave in upper third, forming a thickened convex lobe in front of the notch and terminating behind the angle of mouth; inner surface of conch finely papillose anteriorly, and posteriorly with seven cross ridges tragus short, expanded above, curved inwards, broadest near the top, which is rounded, anterior and posterior borders concave, the anterior stronger than the posterior in concavity, their length about equal to that of expanded upper portion. Wing rather narrow, the fifth finger one-fourth longer than the forearm, the membranes thin, extend to base of the outer toe; third metacarpal 3 mm. longer than fourth, nearly 3 mm. shorter than forearm, fifth about 5 mm. shorter than third. Legs rather robust; foot about half as long as tibia; calcar shorter than tibia; post calcaneal lobule well developed. Tail rather short, not extending to the shoulder when laid forwards, its last vertebræ free.

Fur and color. The fur is rather short and dense, the hairs at the middle of back about 6 mm. in length. Upper and under surface of interfemoral membrane furred on basal third. Color above warm buff and underparts light buff; muzzle and chin dusky; ears and membranes blackish brown.

Skull. The skull resembles that of *Vespertilio murinus* L. in form, but its size larger and its zygomatic and lacrymal breadth broader and interorbital constriction narrower. Rostrum flattened above, rhomboidal; its each side, between nares and lacrymal region, with deep rhomboidal concavity; narial emargination broadly triangular, its apex extending back to level of lacrymal region; anterior palatal emargination large, wider than deep, and extending back to the level of middle of premolar.

Teeth. The teeth resemble those of *Vespertilio murinus* excepting their larger size, but upper outer incisors much smaller, its crown area slightly less than half of inner incisor and the cusp rising nearly to one third of shaft of inner tooth; and upper canines well

developed, and the transverse diameter slightly smaller than its longitudinal diameter; lower premolars not crowded and not compressed; first and second upper molars with crowns rather broad on inner side, protocones robust and high, hypocones small but distinct from commissure of protocone; third molars with crowns more than half that of first molars, its longitudinal diameter through metacone slightly more than half transverse diameter.

Measurements in mm. Head and body 67.5; tail 44; forearm 49; thumb 8.5; third finger 82; fourth finger 67; fifth finger 59; tibia 19; foot 10; ear from meatus 17; width of ear 17; tragus 5.5.

Skull. Condylbasal length 17.5; zygomatic breadth 12; interorbital constriction 43; lacrymal breadth 7; breadth of brain case 9; depth of brain case 5.8; mandible 14; maxillary tooth row 6.8; mandibular tooth row 7.2.